

1           **CLAIMS**

2           1.     In the j-laying of a pipeline from an offshore floating vessel, the method for  
3     raising a pipe section from a horizontal position proximate the deck of said floating  
4     vessel to alignment with a mast for being connected to the end of the pipeline,  
5     comprising

6           providing a main support arm which is pivoted from proximately a horizontal  
7     position to a position proximately parallel to said mast,

8           providing a rotational axis mounted on said main support arm,

9           providing grabbers mounted on said rotational axis,

10          engaging said pipe section proximate said deck,

11          rotating said grabbers about the center of said rotational axis from a position below  
12     said rotational axis to a second position above said rotational axis,

13          pivoting said main support arm and said pipe section to a position proximately  
14     parallel to said mast, and

15          delivering said pipe section to said mast.

16          2.     The method of claim 1, further comprising said grabbers are extended to first  
17     position to engage said pipe section proximate said deck.

18          3.     The method of claim 2, further comprising said grabbers are retracted to a  
19     third position closer to said rotational axis than said first position prior to rotating said  
20     grabbers about said rotational axis to said second position.

21          4.     The method of claim 3, further comprising providing a scissor type  
22     mechanism to move said pipe section from said second position to a fourth position for  
23     delivery to said mast.

1        5. The invention of claim 4, further comprising the use of force parallel to said  
2 rotational axis to extend and retract said scissor mechanism and said grabbers  
3 proximately perpendicular to said rotational axis.

4        6. The invention of claim 5, further providing the use of hydraulic cylinders to  
5 provide said force to extend and retract said scissor mechanism.

6        7. In the j-laying of a pipeline from an offshore floating vessel, the method for  
7 raising a pipe section from a horizontal position proximate the deck of said floating  
8 vessel to alignment with a mast for being connected to the end of the pipeline,  
9 comprising

10        providing a main support arm which is pivoted from proximately a horizontal  
11 position to a position proximately parallel to said mast,

12        providing a rotational axis mounted on said main support arm proximately  
13 perpendicular to said rotational axis,

14        providing grabbers mounted on said rotational axis,

15        extending said grabbers to a first position a first distance from said rotational axis  
16 to allow said grabbers to engage said pipe section proximate said deck,

17        rotating said grabbers about the center of said rotational axis from a position below  
18 said rotational axis to a second position above said rotational axis,

19        pivoting said main support arm and said pipe section to a position proximately  
20 parallel to said mast, and

21        delivering said pipe section to said mast.

22        8. The method of claim 7, further comprising the extending said grabbers from  
23 said second position to a fourth position for delivery of said pipe section to said mast.

1        9. The method of claim 8, further comprising said grabbers are extended from  
2 said second position to said fourth position by a scissors mechanism.

3        10. The invention of claim 9, further comprising the use of force parallel to said  
4 rotational axis to extend and retract said scissor mechanism.

5        11. The invention of claim 10, further providing the use of hydraulic cylinders to  
6 provide said force to extend and retract said scissor mechanism.

7        12. A method of raising a pipe section from the deck of an floating vessel to a  
8 mast for welding onto the end of a pipeline suspended from said floating vessel for  
9 deploying said pipe section and the welded pipeline into the water as a pipeline,  
10 comprising

11        providing a main support arm with a pivot axis proximate one end of said main  
12 support arm,

13        providing a rotational axis along said main support arm proximately perpendicular  
14 to said pivot,

15        mounting one or more grabbers on said rotational axis to engage said pipeline  
16 section proximate said deck when said grabbers are in a first position,

17        rotating said one or more grabbers to a second position relative to said main  
18 support arm,

19        pivoting said main support arm from a generally horizontal angle to a generally  
20 vertical angle, and

21        delivering said pipe section to said mast.

22        13. The method of claim 12, further comprising moving said grabbers to a third  
23 position closer to said rotational axis prior to rotating said one or more grabbers to said  
24 second position.

1        14. The method of claim 13, further comprising providing a scissor type  
2 mechanism to move said pipe section from said first position to said third position.

3        15. The method of claim 12, further comprising extending said grabbers to a fourth  
4 position further from said rotational axis than said second position while delivering said  
5 pipe section to said mast.

6        16. The method of claim 15, further comprising providing a scissor type  
7 mechanism to move said pipe section from said second position to said fourth position.

8        17. The invention of claim 16, further comprising the use of force parallel to said  
9 rotational axis to extend and retract said scissor mechanism.

10       18. The invention of claim 17, further providing the use of hydraulic cylinders to  
11 provide said force to extend and retract said scissor mechanism.

12       19. The method of claim 12, further comprising the interconnecting of said main  
13 support arm to the base of said mast.

14       20. The method of claim 12, further comprising said mast is gimbaled relative to  
15 said floating vessel.

16       21. The method of claim 20, further comprising gimbaling said interconnection of  
17 said main support arm when said mast is gimbaled.

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